



INVESTIGATOR'S ANNUAL REPORT

United States Department of the Interior
National Park Service

All or some of the information you provide may become available to the public.

OMB # (1024-0236)
Exp. Date (11/30/2010)
Form No. (10-226)

Reporting Year: 2008	Park: Shenandoah NP	Select the type of permit this report addresses: Scientific Study	
Name of principal investigator or responsible official: Evan Grant		Office Phone: 301 497 5842	
Mailing address: USGS-PWRC 12100 Beech Forest Rd. Laurel, MD 20708 USA		Office FAX Office Email ehgrant@usgs.gov	
Additional investigators or key field assistants (first name, last name, office phone, office email) No co-investigators			
Project Title (maximum 300 characters): On the movement of stream salamanders: distribution, response to ecological conditions, and contribution to population growth in a community of Plethodontid salamanders.			
Park-assigned Study or Activity #: SHEN-00333	Park-assigned Permit #: SHEN-2007-SCI-0002	Permit Start Date: Mar 01, 2007	Permit Expiration Date: Nov 30, 2009
Scientific Study Starting Date: Mar 01, 2007		Estimated Scientific Study Ending Date: Nov 30, 2013	
For either a Scientific Study or a Science Education Activity, the status is: Continuing		For a Scientific Study that is completed, please check each of the following that applies: <input type="checkbox"/> A final report has been provided to the park or will be provided to the park within the next two years <input type="checkbox"/> Copies of field notes, data files, photos, or other study records, as agreed, have been provided to the park <input type="checkbox"/> All collected and retained specimens have been cataloged into the NPS catalog system and NPS has processed loan agreements as needed	
Activity Type: Research			
Subject/Discipline: Herpetology (Amphibians / Reptiles)			

Purpose of Scientific Study or Science Education Activity during the reporting year (maximum 4000 characters): The objective of this research is to determine if stream salamander dispersal is related to the spatial configuration of stream segments and/or density of conspecifics. Results will inform management and conservation actions at the park and landscape level.
Findings and status of Scientific Study or accomplishments of Science Education Activity during the reporting year (maximum 4000 characters): Number of animals captured (all ages) in sites 19/20, 35/36, and 37/39/40 19.20 35.36 37.39.40 # translocated (included in 37.39.40 count) D.fuscus 209 55 141 37

D.monticola 193 1004 667 57

E.bislineata 339 155 240 84

G.porphyrificus 280 171 184 95

I visited the same 40 m segments on 2 streams near milepost 19-20 (#19,20), and 5 streams (#35,36,37,39,40) in the Jewell Hollow area of the park. Four surveys were conducted on each segment from May through September 2008. I captured and marked a total of 734 Eurycea bislineata, 405 Desmognathus fuscus, 1864 Desmognathus monticola, and 635 Gyrinophilus porphyriticus of all ages across all sites. As in 2007, the streams in Jeremy's Run area had noticeably fewer salamanders per stream segment, and these streams had almost completely dried by July. All streams exhibited some degree of drying over the four sampling occasions, most severe in July.

Of the marked animals, I translocated 84 E. bislineata, 37 D. fuscus, 57 D. monticola, 0 P. ruber and 95 G. porphyriticus following protocols. I recaptured multiple individuals that had been translocated (both from 2007 and 2008), and are in the process of estimating survival and population sizes for all stream segments.

I plan to continue this research through September 2011, following the protocols submitted to the park. Continuing this research will allow a rare opportunity to track both the fates of the resident, marked individuals, as well as answer questions about the likelihood of translocation success in these species. The translocation and the control stream reaches will be compared for survival and movement probabilities, and will provide information relevant to potential management actions regarding stream salamanders.

For Scientific Studies (not Science Education Activities), were any specimens collected and removed from the park but not destroyed during analysis?

No

Funding specifically used in this park this reporting year that was provided by NPS (enter dollar amount):
\$27000

Funding specifically used in this park this reporting year that was provided by all other sources (enter dollar amount):
\$0

List any other U.S. Government Agencies supporting this study or activity and the funding each provided this reporting year:

Paperwork Reduction Act Statement: A federal agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. Public reporting for this collection of information is estimated to average 1.625 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the forms. Direct comments regarding this burden estimate or any aspect of this form to Dr. John G. Dennis, Natural Resources (3127 MIB), National Park Service, 1849 C Street, N.W., Washington, DC 20240.